

PATENT
DOCKET: CU-3300Listing of Claims:

1. A liquid crystal display driving device generating gate-on/off signals to drive liquid crystal comprising:

a sequence recognition unit configured to recognize sequence of a pertinent gate driver IC from a plurality of gate driver ICs by a pulse width of a vertical start signal inputted in synchronization with a vertical synchronous signal, and to generate a carry signal and location data of the pertinent gate driver IC, ~~wherein the sequence recognition unit comprises:~~

~~a m-bit counter configured to estimate the pulse width of the vertical start signal inputted in synchronization with the vertical synchronous signal, and generating the location data of the pertinent gate driver IC; and~~

~~a carry signal generation unit configured to generate the carry signal that a vertical start signal thereof has a pulse width changed on the basis of the location of the pertinent gate driver IC; and~~

~~a carry signal generation unit configured to generate the carry signal that a vertical start signal thereof has a pulse width changed on the basis of the location of the pertinent gate driver IC; and~~

a gate on-off voltage generation unit for receiving a first gate-off voltage and the location data of the pertinent gate driver IC, and outputting a second gate-off voltage which is generated by subtracting a voltage attenuation quantity corresponding to the location data of the gate driver IC from the first gate-off voltage without use of a compensating resistor to generate the voltage attenuation quantity.

2. (cancelled)

3. (previously presented) A liquid crystal driving device as claimed in claim 1, wherein the carry signal is provided to the next gate driver IC so as to be used as a vertical start signal.

4. (cancelled)

5. (previously presented) A liquid crystal driving device as claimed in claim 1, wherein at least one state signal is determined according to resolution, size of a liquid crystal panel, and characteristic of a signal line pattern.

6-12. (cancelled)

13. (previously presented) A liquid crystal driving device comprising:

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a sequence recognition means for recognizing sequence of a pertinent gate driver IC by a pulse width of a vertical start signal inputted in synchronization with a vertical synchronous signal, and generating a Carry signal and location data of the pertinent gate driver IC;

a gate-off voltage generation means for receiving a first gate-off voltage and the location data of the pertinent gate driver IC, and outputting a second gate-off voltage which is generated by subtracting a voltage attenuation quantity corresponding the location data of the gate driver IC from the first gate-off voltage;

a liquid crystal panel including a plurality of signal line patterns to apply a data signal;

a look-up table for storing a plurality of reference data corresponding to the number of gate driver ICs;

a reference data generation section for selecting and outputting one of the plurality of reference data;

a boosting section for boosting signal level of input data by adding the selected reference data to the input data, and outputting the boosted input data to the plurality of signal line patterns;

a count section for generating a count value by counting the number of transitional edges of a vertical synchronous signal; and

a control section for calculating a plurality of parameter values on the basis of the number of gate driver ICs and the number of gate lines, comparing the count value counted by the count section with the calculated parameter values, and controlling the reference data generation section to select and output one of the plurality of reference data with reference to the look-up table according to a result of the comparison.

14. (previously presented) A liquid crystal driving device as claimed in claim 13, wherein the sequence recognition means comprises:

an m-bit counter for estimating a pulse width of the vertical start signal inputted in synchronization with the vertical synchronous signal, and generating location data of the pertinent gate driver IC; and

a carry signal generation unit for generating a carry signal that a vertical start signal thereof has a pulse width changed on the basis of a value of location data of the pertinent gate driver IC.

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15. (previously presented) A liquid crystal driving device as claimed in claim 13, wherein the Carry signal is provided to the next gate driver IC so as to be used as a vertical start signal.
16. (original) A liquid crystal driving device as claimed in claim 13, wherein the gate-off voltage generation means receives at least one state signal.
17. (original) A liquid crystal driving device as claimed in claim 16, wherein the at least one state signal is determined according to resolution, size of a liquid crystal panel, and characteristic of a signal line pattern.
18. (original) A liquid crystal driving device as claimed in claim 16, wherein the gate-off voltage generation means subtracts voltage attenuation quantity corresponding to location data of the gate driver IC from an inputted gate-off voltage, and adds a compensation value corresponding to one of the at least one state signal to the subtracted gate-off voltage, thereby generating the second gate-off voltage.
19. (original) A liquid crystal driving device as claimed in claim 13, wherein the plurality of reference data are determined according to the number of the gate driver ICs, the number of gate lines, size and resolution of the liquid crystal panel, and frame frequency.
20. (original) A liquid crystal driving device as claimed in claim 13, wherein the parameter values are determined as values obtained by giving different weight values to each division value obtained by dividing the number of gate lines by the number of gate drivers.
21. (previously presented) A liquid crystal driving device as claimed in claim 1, wherein the gate-off voltage generation unit receives at least one state signal.
22. (previously presented) A liquid crystal driving device as claimed in claim 21, wherein the gate-off voltage generation unit subtracts voltage attenuation quantity corresponding to location data of the gate driver IC from an inputted gate-off voltage, and adds a compensation value corresponding to one of the at least one state signal to the subtracted gate-off voltage, thereby generating the second gate-off voltage.
23. (new) A liquid crystal display driving device as claimed in claim 1, wherein the sequence recognition unit comprises:
- a m-bit counter configured to estimate the pulse width of the vertical start signal inputted in synchronization with the vertical synchronous signal, and generating the location data of the pertinent gate driver IC; and**

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a carry signal generation unit configured to generate the carry signal that a vertical start signal thereof has a pulse width changed on the basis of the location of the pertinent gate driver IC; and

a carry signal generation unit configured to generate the carry signal that a vertical start signal thereof has a pulse width changed on the basis of the location of the pertinent gate driver IC.